Saskatchewan Research Council 1999/2000 Annual Report

THE WAY FORWARD

SRC

technology is our business

For SRC, The Way Forward is guided by our purpose statement, which, for us, is our compass. As we explore and assess new opportunities in new environments, our purpose is the first test in setting our directions.

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SRC's Mission

SRC's mission is to help the people of Saskatchewan strengthen the economy with quality jobs and a secure environment. We do it through research, development, and the transfer of innovative scientific and technological solutions, applications and services.

SRC's Purpose

SRC creates wealth through the responsible application of science and technology to assist Saskatchewan industry to be globally competitive.

We create wealth by

i) increasing production (of goods and services)

ii) adding value (to goods and services)

iii) improving productivity

iv) creating and commercializing new products and services

The Research Council Act

Section 21 (2) directs that:

Every report shall be laid before the Legislative Assembly in accordance with the Tabling of Documents Act, 1991.

100-06913/

Letter of Transmittal

May 2000

Letter of Transmittal

To the Honourable Lynda Haverstock

Lieutenant Governor of Saskatchewan

May it please your Honour:

The undersigned presents herewith, for your consideration, the report of the Saskatchewan Research Council for the year ended March 31, 2000.

Respectfully submitted,

Eldon Lautermilch

Minister Responsible for SRC

Message from the Chair

I can't imagine a more exciting time to assume the chair of the Saskatchewan Research Council. Many of the initiatives in which SRC has invested considerable resources have just, or are just about to, come on stream. In 1999, SRC's world-class fermentation pilot plant and our plant genetics laboratory opened for business. In 2000, both our pipe flow and petroleum staff will move to new facilities built for the express purpose of offering their clients the best possible service.

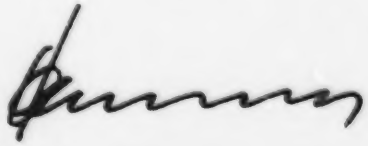
These are major milestones on a journey SRC began some years ago. We are advancing steadily towards greater *responsiveness to* our stakeholders. This means configuring our capabilities in areas where we can most effectively meet the needs of Saskatchewan industry and communities. In several key fields, described in this annual report, our staff members are creating new technologies that we can proudly export to the world, while we import emerging technologies to adapt and apply for Saskatchewan's benefit.

At the same time, we are making good progress towards greater *responsibility to* our stakeholders. We want to make sure that the "business" in "Technology is our Business" gets its due. Every year we move closer to a goal of true corporate financial management as we implement elements of that model. We're taking steps to improve our ability to commercialize technology developed at SRC. We're also working to attract a greater range of funding sources and partnerships to lever our provincial grant.

On this journey, John Cross has been both guide and inspiration, spurring SRC ahead with his unique blend of passion and practicality. John has retired as Chair of the Board of Directors, but with his typical generosity, has agreed to serve as Vice-Chair, at least until I get my feet wet. He has left some tough shoes for those feet to fill, and so I ask everyone to bear with me as I grow into my new role.

Gordon Birney and Ian Wahn, both of whom passed away in 1999, also deserve our gratitude for the significant legacy they have given to SRC and Saskatchewan. Mr. Birney served as SRC's Chair from 1984 to 1993. During his tenure, our industry focus strengthened and we expanded into petroleum and animal genetics research. Mr. Wahn – Rhodes Scholar, lawyer, and MP for Toronto-St. Paul's – never forgot his roots in small-town Saskatchewan. He and his wife, the late Pearl Lychak Wahn, established the SRC Technology in Action Fund to honour the province's early pioneers.

Finally, my fellow directors and I would like to thank the staff of SRC for their continued commitment to excellence in service and innovation. In his first full year as President, Jim Hutchinson has welcomed the challenge of readying a future-oriented technology organization for even greater growth. SRC is plainly a leader on the way forward.



Robert Hawkins
Chairman

President's Message *An Interview with Jim Hutchinson*

Q At a time when some people feel that technology is advancing too quickly and in directions that they may not be comfortable with, how do you promote SRC's motto "Technology is our Business" as a positive message?

JH New technologies and innovations are an inevitable part of our lives and reflect the inventive human spirit. Think how much Saskatchewan has changed over the past one hundred years through innovation. It is our role, as our theme "The Way Forward" suggests, to create new, responsible options for the people of Saskatchewan and they will create our province's future.

Q What is SRC's role within the provincial economy?

JH SRC's Purpose is clear: to create wealth through the responsible application of science and technology to assist Saskatchewan industry to be globally competitive. Our role within the provincial economy is to meet our Purpose by being the government's primary applied research agency.

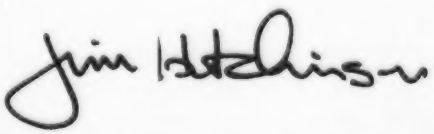
In a number of Saskatchewan's sectors, new technology will be a critical factor in their future success. SRC must assess its core competencies to ensure what skills or capabilities we should have to maximize impact across the targeted sectors of our economy. An interesting example is the capability we are building in information technology/intelligence systems. Some recent advances in this computer-related area can be effectively applied to many sectors of the Saskatchewan economy.

Q How do you measure success in meeting your objectives?

JH For SRC, success is ultimately measured by the impact our work has on the provincial economy. We also look at business and financial measures like net income and revenue growth, and we balance these by also measuring client satisfaction and staff development and satisfaction. As well, we evaluate each program area against what we call "The Whitney Model" to determine if it is strategic, significant, and profitable.

Q How well did SRC do in 1999/2000?

JH SRC had a positive net income in 1999/2000, but our revenues declined due to a major reduction in one of our key areas: mineral exploration. At the same time, it was a year of building for the future with over $12 million invested in infrastructure: the new Petroleum Technology Research Centre where SRC will be the major tenant, the new Fermentation Pilot Plant, the new plant genetics lab (GenServe), and the expanded Pipe Flow Technology Centre. These endeavors will help all of us at SRC to better serve Saskatchewan in the years ahead.



Board of Directors

Front row, left to right.

Mr. Robert Hawkins, Humboldt, Chair – President, Del-Air Systems – Period of Service: 7 years

Hon. Eldon Lautermilch, Regina – Minister Responsible for SRC – Period of Service: 5 years

Mr. John Cross, Saskatoon, Vice-Chair – President, Philom Bios Inc. – Period of Service: 13 years

Mr. Jim Hutchinson, Saskatoon, Secretary – President and CEO, Saskatchewan Research Council – Period of Service: 2 years

Dr. Michael Corcoran, Saskatoon – Vice President, Research, University of Saskatchewan – Period of Service: 3 years

Ms. Jacqueline Melin, Melfort – Lawyer, Melfort Legal Aid Office – Period of Service: 4 years

Dr. Peter Nikiforuk, Saskatoon – Dean Emeritus, College of Engineering, University of Saskatchewan – Period of Service: 22 years

Mr. Val Kononoff, Arelee – Farmer – Period of Service: 10 years

Back row, left to right.

Ms. Patricia Trask, Harris – Food Processing Business Owner, Pat's Kitchen and Pat's Family Catering – Period of Service: 7 years

Dr. Amit Chakma, Regina – Vice President, Research, University of Regina – Period of Service: 3 years

Ms. Verna Mitura, Regina – President, Mitura Economic Research – Period of Service: 7 years

Mr. Terry Grieve, Saskatoon – Principal, Ventures West Management Inc. – Period of Service: 1 year

Mr. Rick Lokken, Prince Albert – President, Lokken Associates Training Consultants Inc. – Period of Service: 4 years

Missing.

Mr. Ray McKay, LaRonge – CEO, Kitsaki Management Limited Partnership – Period of Service: 1 year

Mr. John Tosney, Saskatoon – President, Cigar Lake Mining Corp. – Period of Service: 1 year

SRC is a Saskatchewan-based technology corporation, owned by the province. It employs 210 scientists, engineers, technologists, and administrative staff in facilities in Saskatoon and Regina. This fold-out contains a chart showing the organization by branches and includes a description of each branch.

SRC helps Saskatchewan industries and businesses compete globally by carrying out research and development and providing services (often in cross-branch, multi-disciplinary teams) in seven broad areas of great significance for the province. SRC also exports its expertise and technologies out of province to help support major program areas that Saskatchewan benefits from.

Beginning on page 7 is a description of SRC's work for 1999-2000 in these seven areas:

1. Agricultural Biotechnology
2. Climate Change Solutions
3. Manufacturing and Product Development
4. Mineral Exploration and Mining
5. Petroleum and Oilsands
6. Support for Sustainable Development
7. Firing Up the Future (Educational Initiatives)

Organization Chart

SRC is moving towards an organizational model that is more weblike* than hierarchical or chainlike. The web model reminds us we are most effective when we bring together complementary areas, or apparently unrelated areas, to find really innovative solutions for Saskatchewan industries. The other message we would like to convey is the significant role our Board of Directors plays. The Board's contribution goes far beyond routine monitoring of our financial and operational activities; it serves as a rich resource of people who willingly share their experience and knowledge from a range of sectors, disciplines, and regions. In turn, the web format also reflects the energy and enthusiasm that SRC staff bring to innovative cross-Branch collaborative programs.

*A model defined by Mintzberg and Van der Heyden in *Organigraphs: Drawing How Companies Really Work*; Harvard Business Review; Sept/Oct 1999

SRC's Branches

Process Development

The Process Development Branch provides engineering research services to several sectors, notably petroleum, automotive, agricultural, chemical and mining. Innovative technologies developed with clients and partners enhance the value, cost-effectiveness, environmental impact, and safety of products and practices.

Alternative Energy & Intelligent Systems is a Canadian leader in the development of natural gas vehicles. Our Pipe Flow staff offer unparalleled full-scale pipe flow R&D to resource industries. Process Engineering is a multidisciplinary group that develops continuous processes for a number of sectors. It operates an Analytical Services Unit in Regina.

Small Industry Services

The global competitiveness of Saskatchewan's small- and medium-sized enterprises (SMEs) is enhanced through this Branch's activity. We offer confidential assistance with design, engineering, instrumentation, prototyping, and marketing for product and technology development. We help clients to improve their productivity and profitability, and to reduce energy consumption.

We link SMEs to suitable sources of funding and technical or business advice. A significant portion of the National Research Council's Industrial Research Assistance Program (IRAP) in the province is delivered through SRC.

The Branch also offers specialized digital mapping of satellite data.

Petroleum

This Branch advances the effective use of enhanced oil recovery and treatment technologies by companies operating in western Canada's oilpatch. We apply expertise in reservoir engineering, scaled physical and numerical modeling, and oilfield operations to solving technical challenges, particularly those posed by heavy oil. Our capabilities are complemented by Process Development's programs in field-scale upgrading, pipelining, and artificial intelligence.

Our alliance with the Petroleum Technology Research Centre and the University of Regina offers clients even greater depth and resources.

Mineral Exploration

The Mineral Exploration Branch develops new geological models/concepts and predictive tools for conducting strategic and cost-effective exploration. Based on an understanding of the geological processes leading to mineralization, these models and tools help clients identify areas with the highest potential for economic deposits of uranium, gold, diamonds, and base metals. Contract research is supported by expertise in field mapping, structural geology, mineralogy, geochemistry, petrology, and petrography.

SRC's Geoanalytical Laboratories provides specialized geochemical analyses in the above commodities. Clients receive confidential, timely and accurate results.

Analytical Services

Analytical Services provides fee-for-service analysis to assist in the environmental monitoring and development of Saskatchewan's resources. SRC's expertise in radio-chemistry, organic and inorganic chemistry, and other analytical techniques is needed by both commercial and government clients. The laboratory features sophisticated instrumentation, including a SLOWPOKE II nuclear reactor, to detect trace constituents in a variety of sample types.

Environment

The Environment Branch contributes to the safe, sustainable development and use of the province's natural environment and resources. Many of the Branch's clients are from the resource industry sector. They contract research that will help them meet regulatory requirements for environmentally acceptable operation. As well, governments at all levels and other agencies fund studies that will enable them to assess resource or industrial development projects, and to draw up monitoring and mitigation strategies to protect the environment.

Financial Services

Financial Services provides services to help SRC implement sound financial policies. Our staff assist management with decision making, planning, budgeting, and billing processes, and administer an accounting/payroll system and the SRC Pension Plan. We also interact with regulatory and legislative authorities to ensure SRC fulfills its obligations.

Corporate Administrative Services

This Branch contributes to the effective functioning of all branches of SRC by providing administrative services and operational support. The Branch manages SRC's facilities, and is a leader in the planning and construction of major infrastructure projects like SRC's new Pipe Flow Technology Centre.

The Branch works with a range of government departments and other authorities to ensure SRC's compliance with federal, provincial, and municipal acts and regulations.

Corporate Performance

This Branch enhances SRC's focus on business and human resources excellence. We lead performance management projects to ensure that appropriate key indicators are used to evaluate SRC's performance. Branch staff are also responsible for SRC's corporate relations, such as SRC's Board and the Management Committee of Bova-Can Laboratories as well as our education-oriented community initiatives.

Staff Resource Services (SRS) provides expertise in strategic hiring, staff training and development, compensation and benefits, employee relations, and succession planning. SRS also ensures that SRC complies with provincial labour laws and provincial and federal human rights laws.

Business Development

This Branch pursues new business opportunities in Saskatchewan and around the world. We also manage SRC's technology commercialization subsidiary. TecMark International invests in promising early stage technologies, retains ownership, and protects, licenses, and commercializes technologies developed at SRC.

The Branch promotes SRC's services through business missions at home and abroad. We work with other branches to prepare a variety of marketing, business development and information tools.

Our staff contribute to SRC's building of networks through corporate event planning, trade show participation, and government liaison.

Fermentation Technologies

The Fermentation Technologies Branch supports the biotechnology industry with multidisciplinary R&D in the development of input products for agriculture. Process optimization and pre-commercial production of microbial inoculants, biofertilizers, and animal vaccines are carried out in SRC's new state-of-the-art Fermentation Pilot Plant.

The Branch also has well-established expertise in the production of ethanol from cellulosic feedstocks and cereal grains, as well as in solid state fermentations to produce enzymes and mushrooms.

Genetics

This Branch provides expertise and services in animal and plant genetics.

Through a joint venture with Bova-Can Parentage Testing Inc., Bova-Can Laboratories offers various DNA and blood diagnostic services for both conventional and exotic livestock. DNA testing is used to verify parentage and identify genes that help detect abnormalities and economically important performance traits.

Similar high-quality DNA-based commercial services are offered to plant science clients through SRC's GenServe Laboratories. We emphasize rapid, confidential assistance with product development.

Dr. Faouzi Bekkaoui (GenServe Laboratories) analyzes a sample to generate a DNA fingerprint for the identification of crop variety.

SEVEN MAJOR AREAS OF ACTIVITY

Agricultural Biotechnology

The agricultural biotechnology sector is rapidly gaining steam as an engine of Saskatchewan's economy. Saskatoon is home to an estimated 50 biotech companies, 30 percent of the national industry. Industry projections are that product sales will reach $300 million in 2000 and $700 million in 2007.

The province is a major exporter of bio-based (as opposed to chemical) input products for agriculture; its share of the global market is estimated at five percent.

A looser definition of "agbiotech" as the application of science and technology to the development of products or processes involving living organisms – microorganisms, plants, or animals – raises Saskatchewan's international profile higher still.

Over the past several years, SRC has devoted considerable effort and resources to supporting agbiotech clients, from a partnership in Bova-Can Laboratories in 1987 to the opening of two dedicated laboratories in 1999. Confidential, rapid service and flexible scheduling enhance the competitiveness of small companies.

SRC's capabilities in genetics enable testing for economically important genes, such as those which can dramatically improve meat production in an animal or which can improve the characteristics of a transgenic plant. Testing is also done for genetic defects and to confirm parentage (for animals) or breeder's rights (for plants).

Specific genetic services in SRC's state-of-the-art laboratories include polymerase chain reaction (PCR), genotyping, and mapping of quantitative trait loci.

SRC's fermentation capabilities and facilities enable agbiotech clients to develop new products by scaling up laboratory processes to commercial production. Fermentations of bacteria, yeast, fungi, algae, and recombinant microorganisms are carried out in a highly controlled environment.

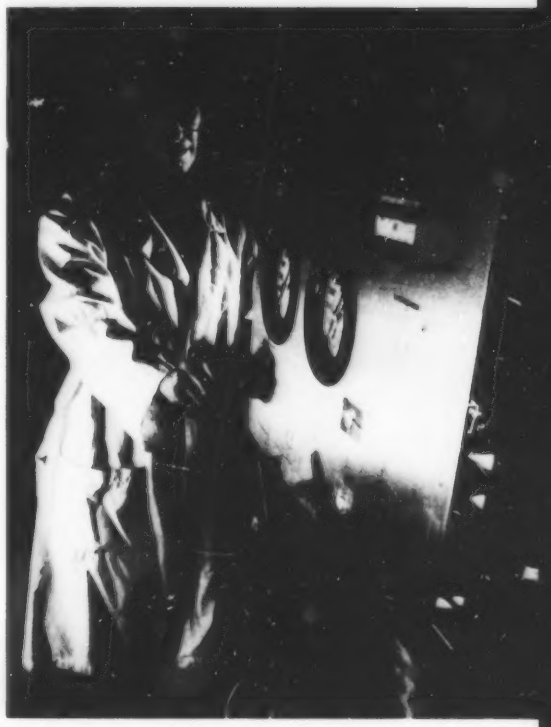
SRC also conducts R&D and economic analyses to promote value-added production from agricultural commodities, such as canola or herbs. In one example, SRC is studying extraction of essential oils, nutraceuticals, and speciality chemicals from a range of plant materials using carbon dioxide. This process results in a purer, more valuable product than conventional steam or solvent extraction methods.

SRC's analytical capabilities are used to test for the presence of pesticides, herbicides and trace metals in oils, grains, and other food products for organic growers and for the export market.

1999-2000 HIGHLIGHTS

GenServe Opens for Business

In 1999-2000, SRC's new plant genetics laboratory geared up for full commercial service to plant breeders, government and individual clients. Thanks to an equipment grant of $563,000 from the Agri-Food Innovation Fund, a complement of specialized DNA-related instruments was purchased and commissioned. The lab's manager, Dr. Faouzi Bekkaoui, and technologist staff were recruited. They carried out several DNA testing projects to identify or confirm genetically modified organisms in plants for a range of clients.



Frances Huntley (Process Engineering) using the supercritical fluid extraction equipment to extract valuable components from plants including essential oils, edible oils, and phytochemicals.

Plant Genetics Lab Aims for GLP Implementation

Much of the effort in GenServe Laboratories' first months of operation involved building a high-quality foundation for excellent service. The staff developed DNA markers needed to support research and development. They also documented procedures for tests and equipment operation to ensure reliable tests results. These procedures are required for GLPs (Good Laboratory Practices).

A Bull Market for Milk

Bova-Can Laboratories wrapped up a two-year project for the Canadian dairy industry to map genes in dairy cattle related to milk production and composition. Bova-Can will continue this work on a practical scale by using results to guide selection of bulls, and by charting the milk production of their daughters. The long-term goal is a genetic tool to further improve the value of dairy herds in a cost-effective manner.

Bison, Reindeer Genes Studied

Demand is growing for genetic research for more exotic livestock. Bova-Can Laboratories investigated genetic markers for the Canadian Bison and the Canadian Reindeer Associations. The aim was to develop a parentage verification test for these animals and to get a start on mapping genes of economic importance. The clients were supported with project funding from the Agri-Food Innovation Fund.

Fermentation Facility Fully Functioning

When the Fermentation Technologies Branch won SRC's Past President's Award of Excellence in 1999, it was to acknowledge their tireless effort in readying the new fermentation pilot plant. That effort continued this year as staff completed installing and commissioning state-of-the-art equipment for fermentation and downstream processing. They also drafted standard operating procedures for equipment operation and maintenance, process operations, chemical and microbial procedures, and safety. The result is a world-class facility being operated by highly qualified staff according to rigorous guidelines.

Joint Venture Fund for Fermentation Companies

A Joint Venture Fund created this year by SRC and Saskatchewan Agriculture and Food will boost the efforts of Saskatchewan's biotech industry to develop new fermentation products such as vaccines, inoculants and bio-control agents. Under a three-year agreement, each funder will contribute $100,000 per year to cover 50% of costs incurred by qualified companies.

Method Could Raise Crop Value

SRC is working with AAFC (Agriculture and Agri-Food Canada) to develop a novel canola processing method to create three products (hull, meal, and oil) from canola instead of two. This has the potential to make an overall increase in the value of the canola crop. An assessment of the process scale-up started this year.

Climate Change Solutions

Saskatchewan, with its continental interior climate, is expected to be "ground zero" as climate change occurs. The effect of shifts in temperature and moisture will be magnified here. Some of the anticipated negative effects include more severe droughts and a shrinking of the boreal forest. A possible positive impact is that the growing season will continue to lengthen. Industry and communities in Saskatchewan will, in any scenario, have to adapt to climate change.

In signing the Kyoto Protocol in 1997, Canada committed to cutting carbon dioxide levels to six percent below 1990 levels by 2008-2012. Two ways that target can be met involve energy conservation and the greater use of alternative fuels with lower CO_2 emissions.

SRC has a range of capabilities to support the development of climate change solutions. Having developed its climate- and atmosphere-related R&D to meet the practical needs of Saskatchewan clients, SRC is now at the forefront of those fields in Canada. The expertise of SRC's climatologists has been sought for national and international climate change studies. SRC's atmospheric sciences staff have contributed significantly to global environmental studies led by NASA, such as the BOREAS Project, which investigated the influence of the northern boreal forest on the earth's atmosphere. Modeling and analysis of climate trends and atmospheric processes help to inform government and industry decision making. SRC's Climate Reference Station in Saskatoon provides a long-term record of climate patterns.

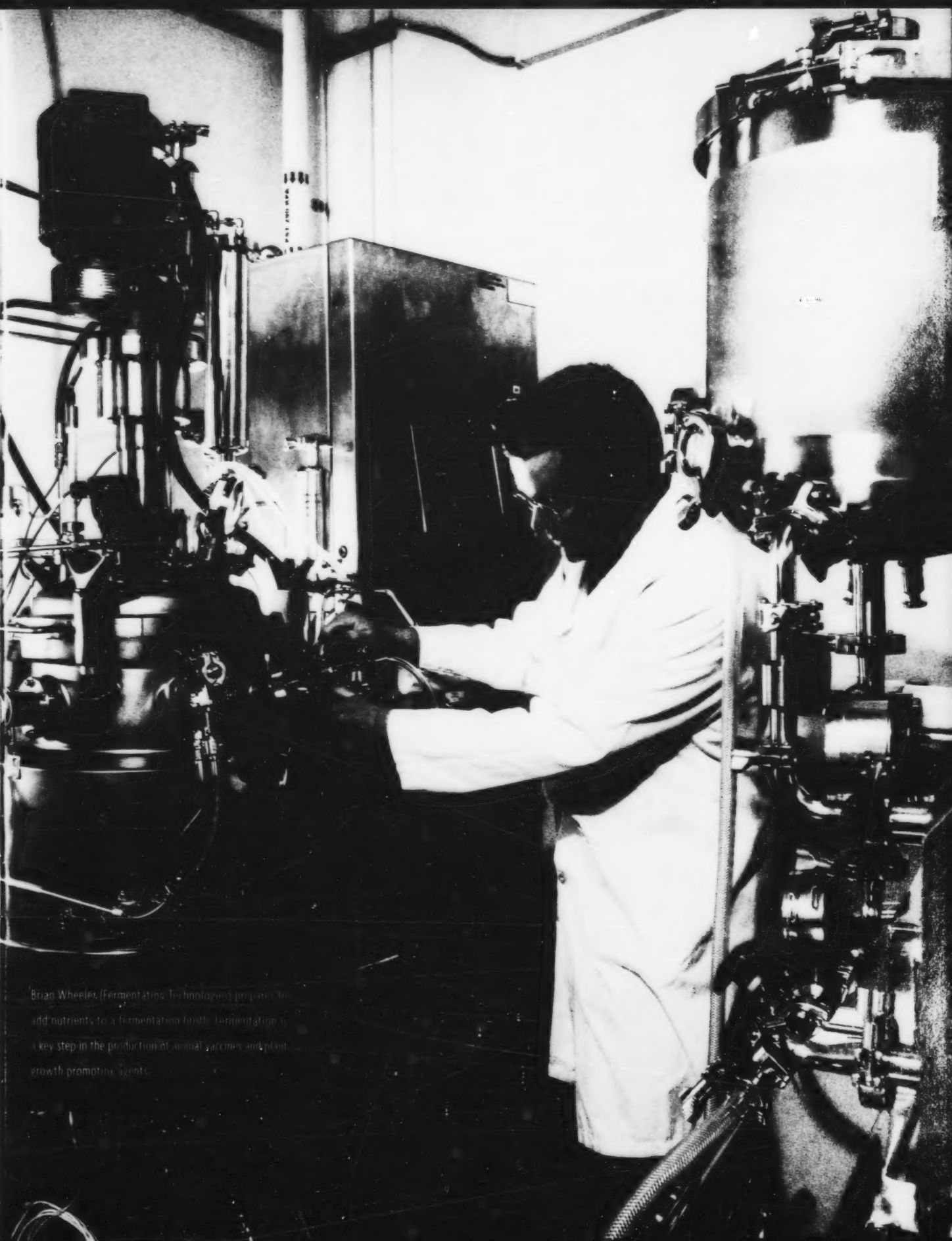
Another example of local initiatives finding widespread application is SRC's work in natural gas technology. A program originally aimed at cutting fuel costs for farmers and establishing infrastructure for natural gas vehicles is now on Canada's leading edge of development of alternative fuel vehicles. SRC research has also explored the potential of ethanol and methanol as a renewable fuel.

SRC is also taking new approaches to mitigating the impact of traditional energy uses. Airtight buildings can significantly reduce energy consumption and associated greenhouse gas emissions. SRC has developed specialized techniques to evaluate building envelope systems, from the design stage to operation. Another program investigated whether substantial volumes of industrial CO_2 can be injected into, and remain captured in, petroleum reservoirs as a means of enhancing oil production.

1999-2000 HIGHLIGHTS

Climate Change Co-op to Help Prairies Cope

SRC is participating in a network aimed at helping Prairie communities and industries reduce their vulnerability to climate change and recognize opportunities that may accompany it. The Prairie Adaptation Research Cooperative



Brian Wheeler, [Fermentation Technologies] prepares to add nutrients to a fermentation broth. Fermentation is a key step in the production of animal vaccines and plant growth promoting agents.

Joe Lychak (Alternative Energy & Intelligent Systems) monitors pulse width and air-fuel ratio during dynamometer testing of natural gas vehicles (NGVs). NGVs reduce greenhouse gas emissions by 25% compared to gasoline vehicles.

(PARC) will fund and conduct research needed to develop adaptation strategies. SRC's Elaine Wheaton, one of PARC's five research coordinators, is an internationally acknowledged authority on this emerging field.

PARC is a federal initiative established through a $3 million grant from the federal government's Climate Change Action Fund.

PARC Activity Heats Up

Three projects in which SRC is participating attracted PARC funding to get the research network off to a running start.

One project is studying how adaptable eight prairie cities are to climate change. Climate-sensitive city management activities like snow removal, road maintenance, and mosquito control are being examined.

The potential impact of climate change on prairie groundwater resources is being evaluated in collaboration with the Geological Survey of Canada and the Prairie Farm Rehabilitation Administration.

A third project on sand dune areas is determining what adaptation strategies may be needed for land users such as ranches and oil and gas operations.

Smart Technology for A Smart Fuel Option

Federal funding of $1.4 million was awarded to SRC for a three-year project to advance the use of environmentally friendly natural gas vehicles (NGVs) through innovative technology. Fuel-efficient NGVs have 25% less greenhouse gas emissions than gasoline vehicles.

The project marries the skills of two SRC R&D teams — Alternative Energy & Intelligent Systems and Instrumentation & Electronics. The "intelligent" neural control system being developed will regulate fuel injection and storage for NGVs, simplifying after-market conversion of gasoline vehicles and permitting bi-fuel operation so as to increase driving range. The technology is also transferrable to fuel cell vehicles.

The Climate Change Action Fund has committed $700,000 to the project. Natural Resources Canada and PRECARN Inc. have each contributed $350,000, while GRI (Gas Research Institute) Canada is providing $250,000. Co-funding and in-kind contributions from other agencies and industry bring the total to almost $3 million.

Saving Private (and Public) Energy

This year, SRC helped to improve energy efficiency in commercial, public and residential buildings around Saskatchewan. Much of the work was diagnostic: energy audits were done of 24 buildings owned by Saskatchewan Property Management Corporation as well as 43 indoor rinks.

A couple of projects focused on long-term prevention. SRC did air barrier testing to ensure building envelope tightness in one new health centre in northern Saskatchewan and contributed to the energy design of another. Energy efficiency in northern housing will be a major focus in the coming year.

Manufacturing and Product Development

The value of products shipped by Saskatchewan's manufacturing industries nearly doubled between 1990 and 1999, and the rising trend is continuing into 2000. Most manufacturing and product development in the province is carried out by small- and medium-sized companies or even individuals, but the global reach of the Internet has turned each one into a multinational. Their need to compete effectively in the world market has taken on new urgency.

SRC assists these businesses in two main areas: product development and productivity

Rob Dumont (Building Performance) in front of his award-winning Saskatoon home. The house, which placed first in the residential category of the Natural Resources Canada Office of Energy Efficiency Awards, consumes about one-third the energy of R-2000 houses. Rob designed and built it using the same energy conservation principles he employs in his work at SRC.

improvement. SRC staff help clients to apply good engineering principles to the design of their products, to improve product quality, performance, and life, as well as cost and ease of manufacturing. Expertise in marketing strategies is also available to help clients make decisions about appropriate production volumes, pricing and promotion is also available.

SRC provides productivity and quality consulting for individual companies, industry associations, or international organizations. Holistic company assessments and sector benchmarking are done as a basis for developing and implementing company improvement plans.

An SRC "engineering and marketing" road show, involving seminars and private consultations, takes these services out to product developers in Saskatchewan's smaller centres.

A key element of SRC's services is linking manufacturers and small businesses with other appropriate sources of advice or funding. As a partner in IRAP—the National Research Council's Industrial Research Assistance Program—SRC supports six industrial technology advisors. SRC is also a partner in the Canadian Technology Network, which assists with business advisory services related to finance, management, and marketing, to complement IRAP's technical advisory services.

SRC also acquires and helps to introduce new design or manufacturing technologies into companies' operations. This has included finite element analysis and computer-aided design and manufacturing. New production technologies such as rapid prototyping are being investigated.

A number of SRC in-house resources contribute to development and prototyping for products in plastics, metals, and electronics and software. The Plastics Resource Centre equipment and expertise enable mold design, fabrication, and small batch test manufacturing. Construction materials can be tested for offgassing in an environmental chamber, and durability at SRC's Outdoor Test Facility.

1999-2000 HIGHLIGHTS

Tool Takes Pulse of IT Sector

SRC used its company diagnostic tool to assess Saskatchewan's information technology (IT) sector. A customized survey and evaluation were done of the capabilities and operations of 20 different IT companies. This diagnostic analysis revealed the problems and opportunities facing the sector survey participants and recommended several ways to improve business practices and competitiveness.

SRC also used the diagnostic analysis tool in one-on-one contracts with Saskatchewan businesses and in several projects funded by Aboriginal Business Canada (ABC). Growth opportunities for fourteen diverse aboriginal-owned companies in Ontario, Western Canada and the Northwest Territories were evaluated.

Visits to View New Technology

SRC partnered with other organizations to lead Saskatchewan companies on out-of-province technology visits. Participants on a trip to Quebec and Ontario were able to view advanced technology in use at some major Canadian firms, including Bombardier, Pratt & Whitney and Ford.

The Alberta Research Council's agri-fibre processing pilot plant was another destination. This trip heightened awareness of new and suitable technologies for Saskatchewan fibre producers.

Forums for Business Knowledge

Saskatchewan entrepreneurs, manufacturers and inventors had the opportunity to learn from leading Canadian business experts at several seminars and presentations co-sponsored by SRC. Among the invited speakers, Dr. Robert Cooper of McMaster University talked about critical success factors for new products; Denzil Doyle of Capital Alliance Ventures explained how to commercialize technologies; and David Hogg of High Performance Manufacturing Consortium discussed advanced and lean manufacturing techniques. Many of these events were the result of collaboration among SRC, the Industrial Research Assistance Program, Canadian Technology Network, Saskatchewan Economic and Cooperative Development, and the Regional Economic Development Authorities.

Help for Small Manufacturers

Small manufacturing companies generally lack the in-house engineering expertise that will translate their great ideas into commercial successes. This year, SRC provided rapid assistance to over 30 small and start-up Saskatchewan manufacturers to enhance their product development, productivity, and marketing. The services included product design, electronics and software design, and welding engineering. As well, SRC provided technical help to almost 30 inventors and to 36 small companies funded by the Industrial Research Assistance Program.

TecMark

TecMark is SRC's technology commercialization company. It invests in promising technologies and offers partners the backing of a solid organizational infrastructure and an established reputation for technology development.

TecMark protects, licenses and commercializes technologies developed at SRC. Incorporated in 1996 as TecMark International Inc., it is a wholly owned subsidiary of SRC.

This year, TecMark invested in ten ongoing projects. An example of a TecMark investment is "Super-Bob", an innovative device for measuring groundwater levels. It was invented by two SRC technologists, Ed Jaworski and Dennis Zlipko, with patent application submitted in 1999.

Bernie Seymour (Product Design and Development) compares the machine result to the CAD drawing on screen

Penny Maki-Scott and [illegible] (Analytical Laboratories) picking [illegible] minerals using bi-occular micro[illegible]

Mineral Exploration and Mining

Mineral exploration and mining contribute significantly to Saskatchewan's economy. The province produces one-third of the world's uranium and one-third of the world's potash. The high quality and comparatively low cost of production of both of these resources assure their continuing global advantage.

It is estimated that, in 1999, Saskatchewan sales for mineral resources excluding oil and gas totaled over $2.3 billion, and that associated royalties and taxes earned the province $237 million in 1999-2000. In 1999, about 17,500 people were estimated to be employed directly or indirectly by Saskatchewan's mining industry.

SRC specializes in developing predictive mineral exploration models, tools and strategies based on understanding Precambrian (sedimentary and crystalline basement rock) and Quaternary (glacial drift) geology and geological processes. Value-added interpretation, both geologic and economic, of geological concepts, data, and samples is strongly emphasized. SRC staff can also assist clients with exploration activities in the field.

SRC's Geoanalytical Laboratories provides clients with specialized geochemical analyses using state-of-the-art instrumentation. Two other SRC laboratories support mineral exploration contract research: the Mineralogical Laboratory uses x-ray diffraction for accurate mineral identification; the Petrographic Laboratory emphasizes advanced petrological interpretation of rock samples.

SRC's hydrogeological and environmental expertise is used by mining industry clients to minimize the impact of their operations on the natural environment. SRC staff work with mining clients such as potash producers to develop decommissioning plans. Innovative methods are employed to monitor ground and surface water and soil for contaminant migration; and analytical assays are performed on a range of sample types.

SRC also carries out R&D on value-added processing to find new products that can be made from such minerals as sodium sulphate.

1999-2000 HIGHLIGHTS

International Project Does Hard Numerical Crunching of Soft Models

SRC is engaging other researchers and clients from around the globe on a three-year, $900,000 project to advance mineral exploration programs. This project involves numerical computer modeling of conceptual models developed by SRC to investigate the complex interplay of processes leading to high-grade mineralization. The models, being developed for uranium, will have global applications to finding other world-class giant deposits, in particular those of gold, base metals, and oil and gas.

SRC is collaborating with other Canadian as well as Australian and French researchers; the clients include companies from Canada, France, and South Africa.

Deal to Benefit Clients, Labs

A recent affiliation between SRC's Geoanalytical Laboratories and TSL Laboratories of Saskatoon will allow both parties to offer their clients a broader range of geoanalytical services. SRC will provide ICP (inductively coupled plasma) analysis as well as uranium and diamond capabilities to TSL's clients. TSL will provide their expertise in high-volume sample preparation in gold and base metals to SRC's clients.

Using fluorimetric testing, SRC's Geoanalytical Laboratories can provide low detection for uranium exploration as required.

Randy Gillies (Pipe Flow Technology Centre) and Ken Owens (Corporate Administrative Services) review the plans for SRC's expanded pipe flow facility. This year, Ken was honoured with a "distinguished member award" by the International Facility Management Association.

New Tools for Mining

Automated or remote systems can greatly enhance the effectiveness and safety of ore mining operations. In 1999-2000, SRC applied its expertise in instrumentation and product engineering to assist in developing innovative devices for the mining industry. Projects for uranium clients involved the design, fabrication and commissioning of probe systems, as well as installation of a meteorological system for a remote airstrip. Preliminary work was done on development of a rock motion detector for a Saskatoon mining research company.

Potash Clients Back Paste Backfill Study

Paste backfill is a novel method of disposing of mining wastes by pipelining them into mined-out areas. So far three clients are supporting a major SRC research project on paste backfill. Discussions are underway with others. The R&D will help potash producers meet the Province's expectations for tailings management procedures.

Petroleum and Oilsands

The petroleum industry is a major economic force within Saskatchewan. The Province estimates that it received nearly $700 million from royalties, taxes, and bids on Crown properties in this fiscal year. In 1999, the value of production topped $3.6 billion. The industry employed almost 16,000 people in direct and spin-off jobs.

About 15% of the crude oil produced in Canada is mined from unique oilsands deposits in northern Alberta; this market share is expected to rise to 35% by 2007.

Innovative technologies are needed to produce both of these resources in an efficient, cost-effective and responsible way.

SRC has established expertise, developed through industry-directed programs, in enhanced oil recovery techniques, notably:

- novel steam injection schemes using horizontal wells
- CO_2 injection for light oil
- air injection
- methane pressure cycling for heavy oil.

Post-recovery oilfield operations also receive much attention. SRC has assisted clients with cost-effective methods for treating produced emulsions, slop oil and solids, and is developing field scale upgrading techniques for heavy oil.

SRC's Pipe Flow Technology Centre contributes to petroleum programs by testing oil flow regimes and sand transport in both horizontal wells and surface transport pipelines. The Centre's major clients are oilsands producers who utilize the SRC's industrial-scaled equipment to study the flow characteristics of their slurry streams.

Associated expertise is available throughout SRC to improve petroleum and oilsands operations and assess their environmental impact. Electronics and intelligent systems engineers can develop automated systems for a range of process control or monitoring purposes. Water resources to support steamflood oil recovery projects can be identified by SRC hydrogeologists. They also carry out groundwater monitoring to detect contaminant migration, while SRC atmospheric scientists provide air testing services for stack and flare emissions. SRC's analytical laboratories in Saskatoon and Regina routinely test such samples as petroleum-contaminated soil and water to support waste management activities and reclamation of abandoned oil industry sites. Such efforts are also supported by SRC's ecological expertise.

Architect's rendering of the Petroleum Technology Research Centre. SRC will occupy two-thirds of the space in the Regina Research Park adjacent to the University of Regina.

1999-2000 HIGHLIGHTS

PTRC Opens New Doors

SRC is a founding member of the Petroleum Technology Research Centre (PTRC). SRC's Regina staff will move to the new world-class facility in the Regina Research Park in July 2000.

The initiative affords SRC an opportunity to broaden its capabilities and suite of established petroleum research programs. It will also enhance collaboration with PTRC partners at the University of Regina with complementary expertise in geology, chemistry, expert systems, and petroleum engineering.

PTRC Projects Explore New Territory

SRC researchers embarked on several promising petroleum projects this year. For example, a cost-effective third-generation recovery method is being developed for southwest Saskatchewan's medium oil. Alkaline-surfactant-polymer (ASP) flooding has the potential to recover over 500 million barrels of oil from waterflooded reservoirs in the region.

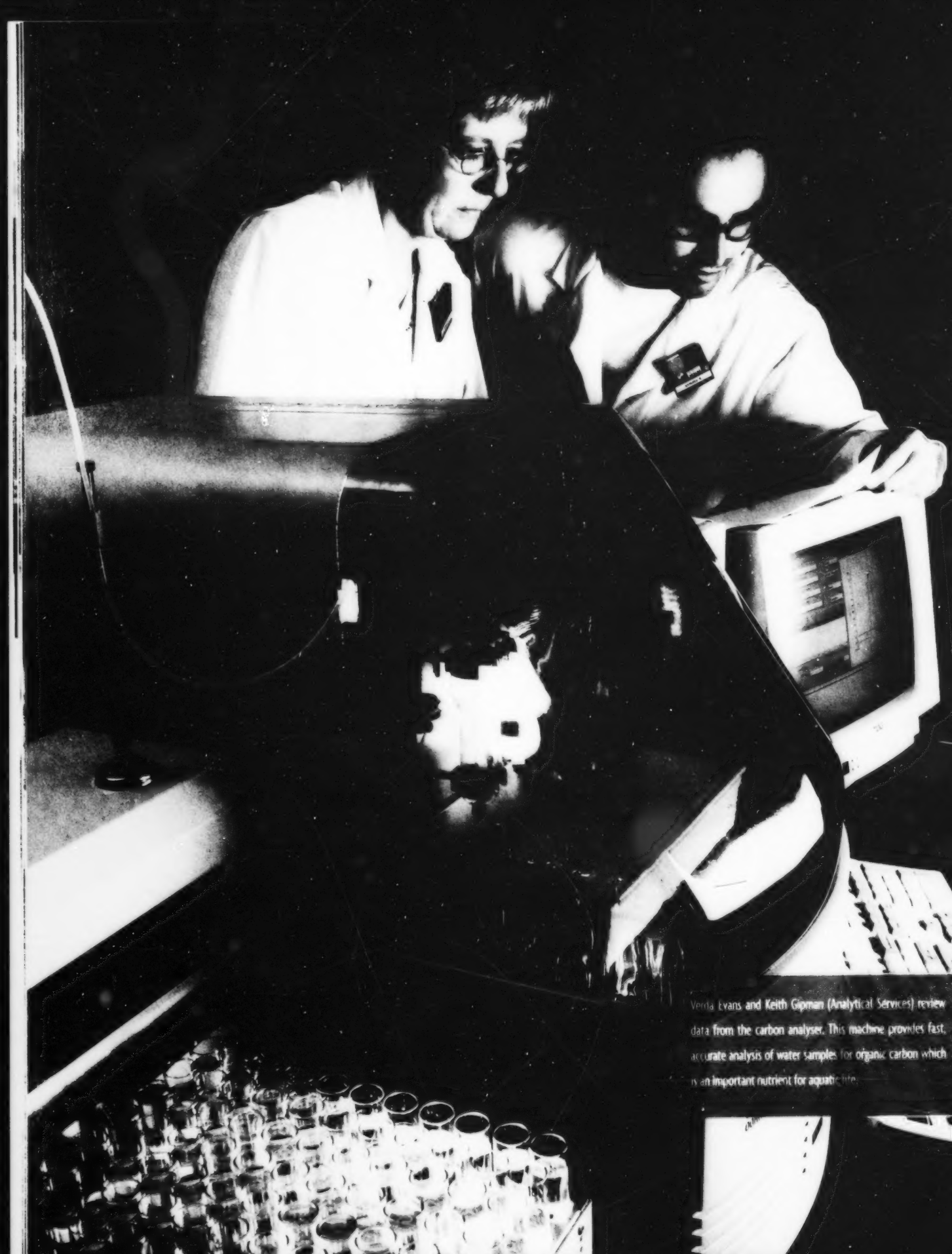
Another project will apply artificial intelligence to oilfield treatment batteries. This technology could allow producers to reduce their energy, chemical, and equipment costs while yielding an oil that meets pipeline specifications.

CO_2 Flooding the Solution?

Carbon dioxide is flowing into southeast Saskatchewan to supply a major enhanced oil recovery venture in Weyburn reservoir. That's sparking interest among many oil companies to assess whether their current properties or prospective purchases are also suitable for CO_2 flooding. This year, SRC helped to support clients' decisions with rapid one-on-one evaluations, based on a few key factors, of CO_2 flood potential in their reservoirs.

Oilfield Flare Fate Studied

Flaring is commonly practiced by petroleum companies in western Canada. The total environmental effects of air pollution from flared gases are, however, largely unknown. SRC is applying its expertise in atmospheric sciences to study the dispersion patterns and processes of these gases in the atmosphere. A current scoping project for Environment Canada is intended to set the stage for a further phase involving in-field monitoring, likely in southeast Saskatchewan.



Verda Evans and Keith Gipman (Analytical Services) review data from the carbon analyser. This machine provides fast, accurate analysis of water samples for organic carbon which is an important nutrient for aquatic life.

Oilsands Clients to Benefit from Centre Expansion

At the end of 1999 - 2000, SRC's Pipe Flow Technology Centre began preparations for moving into its expanded facility. The initiative will allow the Centre to better serve a range of Saskatchewan sectors as well as national and international markets.

In the next few years, several new or expanded oilsands plants will be coming on stream. Their operators rely on advanced pipeline and pumping technology to transport and condition slurry mixtures of the sand, oil, and process water. The new oilsand projects require that large specialized pumps be developed and tested to ensure that the various mixture streams can be handled effectively.

The new centre has over three times the building and lot size of its predecessor. With expected industry contributions of additional equipment, SRC researchers will be able to help design complex pipe flow systems on a larger scale and better serve the petroleum, oilsands, potash, and uranium industries.

Support for Sustainable Development

In Saskatchewan, economic and community viability is intimately bound up with the province's natural resources – both renewable and non-renewable. Therefore, a sustainable approach to resource and economic development in the province is particularly valid.

Sustainable development is described as a strategy by which communities seek economic development approaches that also benefit the local environment and quality of life. It is also defined as a policy of meeting the needs of the present without compromising the ability of future generations to meet their own needs.

SRC offers a full range of analytical and environmental capabilities to advance sustainable development in Saskatchewan and around the world. These are deployed to enhance strategic planning by resource industries, government departments, and communities so that all stakeholders benefit. Other SRC services help industries meet government requirements for safe, sustainable operation and decommissioning.

SRC has developed cost-effective technologies for monitoring or remediating industrial impact on the environment. Electromagnetic tools for monitoring soil, rock and groundwater have been successfully applied to areas surrounding uranium, potash, and pulp and paper operations. A biofilm reactor, an inexpensive means of removing hydrocarbons from refinery or oilfield produced waters, has been developed to reduce water treating costs or to permit water recycling.

SRC staff do fieldwork related to monitoring air quality and stack emissions, groundwater availability and quality, and the health of forest, grassland, or aquatic ecosystems. An SRC program in Prince Albert National Park has helped to maintain habitat complexity and biological diversity.

SRC's analytical facilities, located in both Saskatoon and Regina, are among the most complete in Canada. Staff conduct thousands of analyses annually on a range of sample types, using Quality Assured testing procedures and state of the art instrumentation. Primary capabilities includes ICP (inductively coupled plasma) atomic emission and mass spectrometry, neutron activation analysis using a SLOWPOKE II nuclear reactor, and ion and gas liquid chromatography.

Services include environmental and radiochemical analysis, hazardous waste classification, and transformer oil testing.

1999-2000 HIGHLIGHTS

Mapping the North's Future

SRC embarked on a three-year, multipartner project to reveal opportunities for new economic activity in Saskatchewan's North while helping to ensure that development is sensitive to the environment. The North Digital Land Cover

Workers assess the status of Saskatchewan grasslands.

Project will create digital maps of northern land cover classes from satellite imagery. One partner in the project, Saskatchewan Environment and Resource Management, will be able to use the data, for example, to screen development projects for their environmental impact or for wildlife habitat management and inventory update.

Weather Network Championed

SRC rallied support from provincial stakeholders for the concept of a "SaskMesonet" to supply real-time data on weather conditions. Several North American jurisdictions are successfully operating mesonet networks of simple, rugged atmospheric science monitoring stations. In Saskatchewan, the technology could, for example, allow better timing of crop spraying or irrigation, thus optimizing the use of agricultural inputs, or alert forestry managers to dangerous fire-weather conditions. A scoping study was done to set the stage for a major infrastructure development project in the future.

Conserving Canada's Living Capital

Biodiversity was an important theme in SRC work this year. With the Biodiversity Science Board of Canada, SRC prepared a science agenda to set out a long-term strategy for research, monitoring, and inventory of Canada's diverse genes, species and ecosystems. The agenda is intended to inform policy making by government, non-governmental organizations, and companies. SRC completed a project for a provincial steering committee formed to draft a response to this agenda; the work reviewed and ranked threats to biodiversity in Saskatchewan. These include climate change, agricultural land clearing and road construction.

Health on the Range

SRC completed a range management plan for a ranch in southwestern Saskatchewan owned by the Nature Conservancy of Canada. SRC recommended grazing management practices which will provide sustained production while conserving the health of the grassland.

Helping Communities Thrive

A community development process aimed at coping with rural de-population was conducted for Good Spirit Lake, a resort and farming community in east-central Saskatchewan. SRC staff did an inventory of the area's environmental features, and then facilitated public meetings to develop visions, goals, and plans with the local residents. The process generated projects that the community will work on in the future.

Continuous Improvement at Lab

To better support clients' efforts in sustainable development, SRC's Analytical Services Laboratory implemented a number of upgrades this year. A new laboratory database system will offer improved data management and electronic transfer to clients. SRC's analytical capabilities will also be enhanced by the purchase of faster, more sensitive instruments such as an additional atomic emission spectrometer (for testing of trace metals) and a new organic carbon analyser.

Firing Up Saskatchewan's Future

Saskatchewan's most valuable resource is its young people — those who will create the technologies and the businesses to help the province prosper in the years to come.

SRC is committed to cultivating a new generation of science enthusiasts and entrepreneurs keen to seek out opportunities for growth in Saskatchewan. By promoting interest in science and technology among students, particularly in areas of practical importance for

the province, SRC is helping to ensure that growth will be both bold and responsible.

SRC's education initiatives include providing information packages and speakers for schools, and hiring post-secondary students for summer positions. In addition, SRC sponsors a variety of programs that give students hands-on experience with science and business. *Innovators in the Schools* is a nationwide program that promotes positive attitudes towards science. Canada's *Shad Valley* summer program places outstanding senior high school students in work terms at participating companies, including SRC. *Junior Achievement* of Northern Saskatchewan gives students opportunities to learn about entrepreneurship through running their own businesses.

Carol Beaulieu (Ecosystems) winner of Innovators in the Schools' Volunteer Award for 2000. She regularly tours students through SRC's Climate Reference Station and even takes climate instruments and information on a "road show" to schools around the province.

1999-2000 HIGHLIGHTS

Opening Minds to Science

Almost 600 students in Grades 5 to 8 experienced science up close and in action at two Open Houses co-hosted by SRC and the Innovators in the Schools program.

The events took place at SRC's Saskatoon and Regina locations. A total of 16 interactive displays introduced participants to subjects as diverse as analytical chemistry, diamond exploration, and Saskatchewan inventions.

At the Saskatoon Open House on February 18, Innovators in the Schools was presented with a cheque for $25,000, SRC's contribution for 1999-2000.

Bright Kids Run Candle Company

SRC guided a group of Saskatoon high school students on a whirlwind tour of the business world through the Junior Achievement of Northern Saskatchewan company program. Geck.co, the company mentored and funded by SRC, produced and sold gel candles. Over the five months of the venture, SRC staff advised the participants on everything from production to marketing to human resource issues. From start-up to liquidation, the company's original share value rose 250%.

School Partnership Works

Like many corporations, SRC is partnered with a local school, in this case, Saskatoon's Bishop James Mahoney (BJM) High School. The focus of this partnership is an annual mentoring program that this year brought ten Grade 11 students into SRC to observe, work with, and receive guidance from staff members. One BJM student was also hired for the summer.

SRC also brings science to BJM through a seminar series. This year students learned about SRC's work in the fields of genetics, biotechnology, remote sensing, diamond exploration, and atomic structure.

Diamond exploration was a favourite display for students at the "Innovators in the Schools"/ SRC Open House.

Technology in Action: The SRC Fund

The SRC Fund is a perpetual memorial fund, established by the Ian and Pearl (Lychak) Wahn Family, in honour of their parents and grandparents who were pioneers in what is now Saskatchewan. The Fund also accepts donations from other people and organizations who share the desire to leave a lasting legacy to the people of this province, through their support of Saskatchewan research, development, commercialization and transfer of technology.

The purpose of Technology in Action is to help the people of Saskatchewan develop this province as a highly skilled, fair, desirable and compassionate society with a secure environment. In practical terms, it means helping to address the needs of small- and medium-sized businesses, farmers, rural communities and the natural resource industries.

Over the last five years, Technology in Action has been responsible for funding five early-stage technology development projects.

SRC's Staff – SRC's Strength

SRC staff members volunteer their time and talents to serve on a range of committees. These committees make the SRC workplace safer, more responsible to clients and to the community, more responsive to worker needs, and a lot more fun as well.

The Staff Relations Committee brings forward policy-related issues raised by staff, and reviews management's draft human resource policies. Every area in SRC is represented by a committee member.

The ***SRC Staff Associations*** in Saskatoon and Regina organize occasions for employees and their families to socialize and also to become involved with community initiatives.

The ***Pension Advisory Committee*** promotes awareness and understanding of SRC's Employees' Pension Plan among members and potential members; and periodically reviews various aspects of the Plan.

The ***Employment Equity Committee*** monitors the initiatives set out in the employment equity plans as approved by the Federal Contractors Program and the Saskatchewan Human Rights Commission.

The ***Occupational Health and Safety (OHS) Committees*** (Saskatoon and Regina) identify safety concerns and issues to be addressed by workers and supervisors. They also conduct safety audit tours of SRC facilities to ensure that SRC is providing a safe place to work.

The ***Field Work and Working Alone Task Team*** reviewed OHS regulations for these issues which affect a number of SRC workers; they revised SRC's policy for field work and created a new one for working alone.

The ***Organic Solvents Task Force***, formed to examine health issues concerning exposure to organic solvents, made wide-ranging recommendations about enhancing SRC's safety policies and educating staff about personal protection in a laboratory environment.

The ***Green Committee*** fields questions from staff on recycling and environmental issues, and encourages their involvement with initiatives such as paper recycling, battery collections, and paint exchanges. Its members also represent SRC on the Innovation Place Research Park Green Team.

The ***SRC Year 2000 Committee*** investigated all areas within SRC's operations that could possibly be affected by the Year 2000 and recommended solutions. SRC completed a successful transition to Year 2000 with no disruption encountered in normal service.

The ***Disaster Recovery Committee*** is developing a comprehensive business continuance/disaster recovery plan that includes risk assessment, facility recovery, information management (data management and storage) and contingency planning.

The ***Web Page Committee*** brought forward ideas and concerns to ensure that SRC's redesigned website is a highly effective marketing tool for SRC's clients, partners and colleagues: easy to navigate, informative, and well-linked.

The ***Student Program Committee*** monitors and makes recommendations on student hiring initiatives. It oversees the Summer Experience Program for post-secondary students, and the Shad Valley Program.

1999/2000 Employee Career Milestones

10 Years:

Rob Dumont
Marlene Heskin
Kevin Lang
Jerry Makohon
Cathy Peters
Larry Snodgrass
Jeff Thorpe
Randy Fedyk
Sheldon Hill
Ernest Lennox
Bruce Mann
Marie Savostianik
Vicky Snook

20 Years:

Gloria Drader
Mark Simpson
Elaine Wheaton
Paul Schergevitch
Lori Sopher
Wo Yuen

25 Years:

Randy Gillies
Stan Shewchuk
Brenda Stanek
Bryan Schreiner
Brett Smith

35 Years:

John Dyck

Staff List (1999-2000)

(as of March 31, 2000)

PRESIDENT/CEO

Jim Hutchinson (MS, BASc, PEng)
Tamra Kostiuk

FINANCIAL SERVICES

Chief Financial Officer - Crystal Smudy (BComm, CA)
Robin Dick (BA)
Maureen Millhouse
Cathy Peters (BAC)
Lisa Poelzer
Vicki Powell

CORPORATE PERFORMANCE BRANCH

Director - Lisa Wallace (BComm, CA)
Lynne Gorgchuck
Linda Kunstmann
Wendy Lawrence (BAdmin, CHRP)
Janelle Tang
Donna Wright

BUSINESS DEVELOPMENT BRANCH

Director - Gerry Brown (PhD)
Wanda Brown (BA, BEd)

CORPORATE ADMINISTRATIVE SERVICES

Director - Ken Owens (PMgr, CFM, BAC)
Kimberley Mann (BAC)
Brent Hannah
Terry Mazurkevich
Greg McLean
Wally Rielkoff
Joe Giesinger
Colleen MacLeod (BusAdmDip, Acc/Comp)
Julie Raven (LibTech)
Pat Sherwood
LaWanda Schneider
Jackie Mamer

PETROLEUM BRANCH

Director - Ernie Pappas (BSME, PEng)
Julia Dickinson
Ming Dong (PhD)
Ray Exelby (MechEngTech)
Norman Freitag (PhD, PEng)
Edna Horn
Sam Huang (PhD)
Keith Hutchence (MSc)
Brian Kristoff (BSME, PEng)
Larry Kurucz (ChemTech)
Harald Liebe (MSc, PEng)
Gordon Meyer (Pet/CompTech)
Gay Renouf (BSc)
Bart Schnell (EnvScTech)
Jerry Scoular (BSc, PEng)
Craig Semple
Brenda Tacik (BJourn, BA Hons)
Bela Verkoczy (PhD)
Nadine Zerr

MINERAL EXPLORATION BRANCH

Director - Ranga Ranganathan (PhD, PEng)
Irvine Annesley (PhD)
Catherine Madore (MSc)
Dave Quirt (MASc)
Rupan Shi (MSc)
Al Holsten (BSc)
Pat Archibald (BA)
Brian Bell
Regan Buhl
Steve Cutts
Derek Gagnon
Bernard Gartner
Doug Holst
Darrell Horychun
Al Jackson
Penny Maki-Scott (BSc)
Mike Richard
Patricia Shuya
Teodoro Villena
Janice Wilms

PROCESS DEVELOPMENT BRANCH

Director - Ranga Ranganathan (PhD, PEng)
Eddie Chung (BSc)
John Dyck (PhD, PEng)
Randy Gillies (PhD, PEng)
Sheldon Hill (BSc, PEng)
Frances Huntley (ElecCommTech, MedLabTech)
Cindy Jackson (BSc)
Joe Jones (BA, InstTech)
Curtis Knops (MechEngTech)
Joe Lychak (MV MR Tech)
Bob MacPherson (Commercial Pilot)
Melissa McKibben (PhD, PEng)
Sandra Meyers
Gerry Perron (BioScTech)
Darren Riley
Jason Schaan (BE)
Mike Small (ChemTech)
Doug Soveran (BSc, PEng)
Mike Sulatisky (MSc, PEng)
Ruijun Sun (BE, MSc)

SMALL INDUSTRY SERVICES BRANCH

Director - David Grier (BE, PEng)
Allan Malinoski (BE, PEng)
Tony Kaminski (PhD, PEng)
Steve Kosteniuk
Orville Olm
Bernie Seymour (CAD/CAMTech)
Lori Sopher (BEd)
Craig Murray (BSc, PEng)
Ken Babich (ElecTech)
Lionel Hebig (ElecTech)
Brett Smith
Kim Young (MSc, PEng)
Mark Gimby (DiplVocAg)
Jennifer Haskey
Roger Wong (BE, PEng)
Sarah Falk (BSc-Ag, BSc-CompSci)
Steven Noseworthy (BE)
John Sher (BSc, PEng)
Bernie Zuk (BA, BE, PEng)
Robert Dumont (PhD)
Jerry Makohon (BAC)
Larry Snodgrass (CivEngTech, AScT)
Peggy MacTavish (MSc)
Nick Nicolichuk (CivEngTech)
Ian Radchenko (BA)
Marie Savostianik (BAC)
Marcia Green (BAC)
Judy Peters
Tangy Rowe

FERMENTATION TECHNOLOGIES BRANCH

Director - Krystyna Sosulski (PhD, PAg)
Robert Ashton (BioScTech)
GuoQiang Dong (PhD)
Derry Elder (BSc)
Kelly Hill (PhD, PEng)
Paul Schergevitch
Leah Tarasoff (MLT)
Yao Qin Wang (BSc)
Brian Wheeler (BSc)
Kari McCaffery (BSc) U of S Dept Applied Microbiology & Food Science

GENETICS BRANCH

Director - Gerry Kraay (PhD)
Faouzi Bekkaoui (PhD)
Vanessa Crawford
Vicki Gerwing (BSc)
Laura Greaves (RegTech)
Ursel Hollmann (BAC)
Kevin Lang (BSc)
Ernie Lennox (BioScTech)
Bruce Mann (BioScTech)
Yves Plante (PhD)
Laurie Polishchuk (RegTech)
Marian Remenda
Richard Sinclair (BioScTech)

ENVIRONMENT BRANCH

Director - Bryan Schreiner (PhD, PEng, PGeo)
Carol Beaulieu (BA)
Ray Begrand (BSc)
Janet Campbell (MSc, PGeo)
Leanne Crone
Bob Godwin (BSA Hons)
Marlene Heskin
Charlene Hudym (CPC)
Rolf Jahren (BSc)
Ed Jaworski (RRTech)
Harm Maathuis (MSc, PEng, PGeo)
Guy Melville (PhD)
Mary Moody (BSc Hons)
Shenay Niyazi
Stan Shewchuk (PhD)
Mark Simpson (BA, PGeo)
Kasandra Tanner
Jeff Thorpe (PhD)
Keith Wallace (BSc Hons)
Terri Warkentin (ChemTech)
Elaine Wheaton (MSc Hons)
Virginia Wittrock (BScA, MSc)
Dennis Zlipko (AScT)

SRC ANALYTICAL SERVICES BRANCH

Director - Gene Smithson (PhD, PEng)
Deanna Anderson
Nelia Baldoza (BSc)
Monica Bengtson (MedLabTech)
Beau Beres (ChemTech)
Katherine Chan (BSc, ChemTech)
Jean Chiasson (ChemTech)
Dave Chorney (ChemTech)
Loran Chrusch (BSc)
Janinne Collins (MedLabTech)
Lorna Derry (ChemTech)
Paulette Diakow (BFA, ChemTech)
Tracy Didur (ChemTech)
Vanessa Doell (ChemTech)
Gloria Drader (ChemTech)
Tracy Edmison (MedLabTech)
Verda Evans (ChemTech)
Muzaffer Fahri (BSc)
Randy Fedyk (ChemTech)
Betty Folk
Jeanette Fusick (ChemTech)
Keith Gipman (ChemTech)
Crystal Kalyniuk (ChemTech)
Renata Kennedy (MedLabTech)
Indra Khosla
Jennie Ma (BSc)
Pam Malko (ChemTech)
Ahmed Mohamed (MSc)
Pat Moser (ChemTech)
Leona Neufeld
Judy Ng
Tina Piché (BioScTech)
Danna Polanski (RN, MedLabTech)
Shannon Rennie
John Robinson (BSc)
Gail Shutiak (ChemTech)
Vicky Snook (ChemTech)
Brenda Stanek (BSc)
Cindy Tamosiunis (ChemTech)
Beverly Ullah (ChemTech)
Kathie Webb (VetTech, PubAdmin Dip)
Shane Wilkie (ChemTech)
Tracey Wolfe (ChemTech)
Kim Wu (ChemTech)
Wo Yuen (PhD)
Jeff Zimmer (BSc)

1999-2000 Publications

Petroleum Branch

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U-Pb Zircon and Monazite Ages from the Sub-Athabasca Basement of the P-Patch Uranium Deposit, Wollaston Domain, Saskatchewan, I.R. Annesley, C. Madore, S.L. Kamo, T.E. Krogh, in Abstracts V. 24, Geological Association of Canada - Mineralogical Association of Canada, p. A-3, 1999

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Saskatchewan Research Council 2000 Consolidated Financial Statements

Report of Management

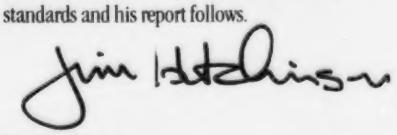
Year ended March 31, 2000

The accompanying financial statements are the responsibility of the management of the Saskatchewan Research Council. They have been prepared in accordance with generally accepted accounting principles, using management's best estimates and judgements, where appropriate.

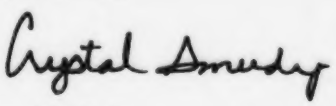
Management is responsible for the reliability and integrity of the financial statements, the notes to the financial statements, and other financial information contained in this report. Management is also responsible for maintaining a system of internal controls, policies and procedures designed to provide reasonable assurance that assets are safeguarded and that accounting systems provide timely, accurate and reliable financial information.

The Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control. The Board is assisted in exercising its responsibilities through the Audit/Finance Committee, which is composed of four non-management directors and one management director. The Committee meets periodically with management to satisfy itself that management's responsibilities are properly discharged, to review the financial statements and to recommend approval of the financial statements to the Board.

The Acting Provincial Auditor of Saskatchewan has audited the Council's financial statements in accordance with generally accepted auditing standards and his report follows.



Jim Hutchinson
President and CEO



Crystal Smudy, CA
Chief Financial Officer

Consolidated Financial Statements

For the Year Ended March 31, 2000

Auditor's Report

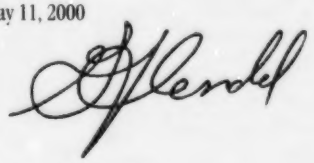
To the Members of the Legislative Assembly of Saskatchewan.

I have audited the consolidated balance sheet of the Saskatchewan Research Council as at March 31, 2000 and the consolidated statements of operations and retained earnings and cashflows for the year then ended. The Council's management is responsible for preparing these financial statements for Treasury Board's approval. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these consolidated financial statements, present fairly, in all material respects, the financial position of the Council as at March 31, 2000 and the results of its operations and its cash flows for the year then ended in accordance with generally accepted accounting principles.

Regina, Saskatchewan
May 11, 2000



G. F. Wendel, CMA, CA
Acting Provincial Auditor

SASKATCHEWAN RESEARCH COUNCIL

Consolidated Balance Sheet

As At March 31

Statement 1

	2000	1999
ASSETS		
Current assets:		
Accounts receivable	$ 2,508,023	$ 2,539,663
Prepaid expenses	415,883	84,906
	2,923,906	2,624,569
Non-current assets:		
Advances receivable	–	12,015
Deferred charge (Note 3 and Note 4)	766,000	1,018,000
Restricted investments (Note 5)	537,286	168,566
Capital assets (Note 6)	6,927,493	6,306,789
	$11,154,685	$10,129,939
LIABILITIES AND PROVINCE'S EQUITY		
Current liabilities:		
Bank indebtedness (Note 7)	$ 1,218,198	$ 1,240,231
Accounts payable	811,088	1,473,325
Advances payable	43,344	–
Unearned revenue	1,003,044	315,342
Deferred revenue (Note 8)	390,203	822,527
Salaries and wages payable	416,066	560,141
Vacation payable	102,175	115,116
	3,984,118	4,526,682
Non-current liabilities:		
Sick leave benefits payable	424,684	432,480
Accrual for decommissioning (Note 9)	800,000	686,000
Deferred revenue (Note 8)	2,795,429	2,326,820
	8,004,231	7,971,982
Province's equity:		
Retained earnings – unappropriated (Statement 2)	2,613,168	1,989,391
Retained earnings – appropriated (Note 5)	537,286	168,566
	3,150,454	2,157,957
	$11,154,685	$10,129,939

(See accompanying notes to the financial statements)

SASKATCHEWAN RESEARCH COUNCIL

Consolidated Statement of Operations and Retained Earnings

Year Ended March 31

Statement 2

	2000 (Note 13)	1999 (Note 13)
Revenue:		
Contracts	$10,679,447	$11,167,240
Grant – General Revenue Fund	7,947,000	7,956,000
Grants – Agri-Food Innovation Fund (Note 8)	389,504	290,853
Bank interest revenue	150,459	136,137
	19,166,410	19,550,230
Expenses:		
Salaries and benefits	10,047,840	10,062,730
Supplies and services	4,214,409	4,542,434
Accommodation charges	3,078,929	3,027,236
Amortization of capital assets	907,145	1,007,830
Amortization of Agri-Food Innovation Fund funded assets (Note 8)	389,504	290,853
Bank interest	11,077	8,853
	18,648,904	18,939,936
Net income from operations	517,506	610,294
Technology in Action Fund donations (Note 5)	352,415	25,000
Pension Plan increase (decrease) in surplus amount (Note 4)	175,576	(125,315)
Pension Plan enhancement to Pensioners' Benefits (Note 4)	(53,000)	(470,000)
Net income	992,497	39,979
Retained earnings - unappropriated, beginning of year	1,989,391	1,951,325
Deduct amounts appropriated during year (Note 5)	(368,720)	(1,913)
Retained earnings - unappropriated, end of year - to Statement 1	$ 2,613,168	$ 1,989,391

(See accompanying notes to the financial statements)

Consolidated Statement of Cash Flows

Year Ended March 31

Statement 3

	2000	1999
Cash flows from operating activities:		
Cash receipts from contracts	$11,101,501	$10,993,126
Cash receipts from General Revenue Fund (GRF)	8,012,000	7,956,000
Cash receipts from donations	352,415	25,000
Cash paid to suppliers and employees	(17,410,627)	(18,480,744)
Interest received	119,154	133,224
Interest paid	(11,077)	(8,853)
Cash flows from operating activities	2,163,366	617,753
Cash flows from investing activities:		
Purchase of investments	(350,000)	(10,000)
Purchase of capital assets	(2,564,051)	(4,345,279)
Proceeds from sale of capital assets	46,698	57,721
Cash flows used in investment activities	(2,867,353)	(4,297,558)
Cash flows from financing activities:		
Cash receipts from AFIF (Note 8)	726,020	1,140,200
Cash receipts from Provincial Strategic Initiative Fund (GRF)	–	300,000
Cash flows from financing activities	726,020	1,440,200
Net increase (decrease) in cash and cash equivalents	22,033	(2,239,605)
Cash and cash equivalents, beginning of year	(1,240,231)	999,374
Cash and cash equivalents, end of year	$(1,218,198)	$(1,240,231)
Represented by:		
Bank indebtedness	$(1,218,198)	$(1,240,231)

(See accompanying notes to the financial statements)

Notes to the Consolidated Financial Statements

March 31, 2000

1. Status of Saskatchewan Research Council

Saskatchewan Research Council ("the Council") was established pursuant to Section 3 of *The Research Council Act* for the purpose of research and investigation in the fields of the physical sciences, pure and applied, as they affect the economy of the Province of Saskatchewan. The Council is a body corporate which receives monies appropriated by the Legislature for these purposes. It is also empowered to conduct research under contract for others and to receive financial assistance pursuant to agreements with other similar agencies.

2. Summary of Accounting Policies

The financial statements are prepared in accordance with generally accepted accounting principles. The following accounting principles are considered to be significant:

a) Consolidation Principles and Basis of Presentation

The accounts of TecMark International Commercialization Inc., a wholly owned subsidiary of the Saskatchewan Research Council, are consolidated in these financial statements.

The Council's proportionate share of the assets, liabilities, revenues, expenses and cash flows of a joint venture with Bova-Can Parentage Testing Inc. are included in these financial statements.

b) Accrual Basis

The financial statements are prepared on the accrual basis of accounting.

c) Revenue Recognition

Revenue from the majority of contract work is recognized on the percentage-of-completion method which recognizes revenue as a contract progresses. Unbilled revenues are accrued to the year-end for these contracts, while pre-billed revenues received are classified as unearned revenue.

Other contributions that are restricted for a specified use are deferred and are recognized as revenue when the related expenses are incurred.

Agri-Food Innovation Fund revenue is recognized at the same rate as the assets are put in use and amortized.

d) Capital Assets

The assets of the Council are initially recorded at cost, including labour, material and overhead for self-constructed assets.

Amortization of capital assets is provided over the estimated useful lives of the assets on the following basis:

i) Sum-of-the-years'-digits method

Buildings	20 years
Equipment	5-10 years

ii) Declining balance method

Automotive	33 1/3%

iii) Straight-line

Goodwill	5 years
Leaseholds	9 years
Fermentation and GenServe Equipment	10 years

e) Accrued Vacation Credits

The costs associated with vacation credits are recognized when the vacation entitlements are earned. The value of credits earned to the year-end but not taken is reflected as a liability.

f) Sick Leave Benefits

The Council allowed unused sick leave credits to accumulate over the term of employment for each employee to March 31, 1998. The costs associated with these sick leave benefits are recognized when benefits are earned and accumulated by employees at a rate of 10% of the unused accumulated value of credits earned.

The practice of accumulating sick leave credits for 10% payout ceased effective April 1, 1998. Upon termination of employment the Council pays out 10% of the accumulated unused sick leave credits to March 31, 1998, based on the wage rate in effect at March 31, 1998.

g) Accrual for Decommissioning

The Council accrues the liability for future decommissioning and site restoration costs when the likelihood of incidence is established and such costs can be reasonably determined. Annual provisions for estimated future asset decommissioning and site restoration costs, less any residual or salvage value, are charged to Supplies and Services expense over the remaining service lives of the related capital assets. These cost estimates are revised periodically in accordance with changes in the assumptions and estimates underlying the calculations, with changes in technology, with experience arising from the decommissioning of capital assets, and with changes in applicable legislation and regulations.

h) Restricted Investments

The investment is comprised of deposits in units in a money market mutual fund and units in a balanced mutual fund, both managed by a professional investment manager. The money market fund and the balanced mutual fund have no fixed interest rates, and the returns are based on the performance of the funds. Additional units in the mutual funds are acquired when distributions are made by the funds. Cash dividends are not paid by the funds; however, investors can realize changes in the underlying unit values by redeeming units.

Units in the mutual funds are recorded in the accounts at their net asset value per unit. Net asset value per unit is the market value of the investments in the fund portfolio divided by the total number of outstanding units in that fund. The adjustment necessary to record units at their net asset value at the year-end is included in bank interest revenue.

3. Deferred Charge

The deferred charge on the balance sheet is the Pension Plan Surplus as at March 31, 2000.

4. Pension Plan

The Council maintains a Pension Plan for its employees. Until December 31, 1990, it was a defined benefit plan. Effective January 1, 1991, the Plan was changed to a defined contribution plan. The changes do not affect existing pensioners who will continue to receive benefits as granted. The latest actuarial valuation was updated as at January 1, 2000. The Pension Plan has been valued using the administrator's best estimates. The financial position of the Plan is as follows:

	2000	1999
Plan assets at market value, January 1	$23,824,798	$22,104,991
Adjustment for increase (decrease) in market value to March 31	173,422	(86,568)
Plan assets at adjusted market value	23,998,220	22,018,423
Accrued Plan benefits:		
Defined contribution	19,928,220	17,716,423
Defined benefit	3,251,000	2,814,000
Enhancement to Pensioners' Benefits	53,000	470,000
Surplus	$ 766,000	$ 1,018,000

Upon termination of the Plan, any balance of the Pension Fund remaining after all liabilities are discharged shall belong to the Council. The balance may be distributed in a manner to be determined by the Council at its sole discretion after receiving approval in accordance with *The Pension Benefits Act*, 1992, the *Income Tax Act* (Canada) and the regulations thereunder.

During the year, the Council used $374,576 (1999 - $466,685) of the pension surplus excess to offset employer contributions to the Plan. The Council had been holding back this surplus as a contingency reserve; however, due to good investment performance, the contingency reserve had increased beyond the required and acceptable level. The contribution holiday ceased effective December 31, 1999, in accordance with the application to the Saskatchewan Superintendent of Pensions.

Under the current provisions of the Plan, no increase is paid to any pensioner in the years during which the fund earned less than 6%. During 1999, the Board of Directors passed a Motion to grant increases to the pensioners' benefits for the three years when no increases were provided. The additional pensions represented by this liability will commence, retroactive to April 1, 1999, once approval of the Amendment has been received from the Canada Customs and Revenue Agency (CCRA). The Council has already received approval from the Saskatchewan Superintendent of Pensions and expects that the CCRA will approve the Amendment.

The Council included a charge of $53,000 (1999 - $470,000) based on the Actuary's estimate of the cost of these increases. Since the proposed amendment to the plan has not been approved by the CCRA there is some uncertainty associated with this estimate.

	2000	1999
Surplus, beginning	$ 1,018,000	$ 2,080,000
Contribution holiday	(374,576)	(466,685)
Plan administration	(68,842)	(62,423)
Investment gain (loss)	244,418	(62,892)
Enhancement to Pensioners' Benefits	(53,000)	(470,000)
Surplus, ending	$ 766,000	$ 1,018,000

5. Restricted Investments

Restricted investments represents the Technology in Action Fund ("Fund"), which was established by the Council in 1994 when Mr. Ian Wahn made a gift to the Council, an agent of the Crown. The Fund was established to help the people of Saskatchewan develop their province as a highly skilled, fair, desirable and compassionate society with a secure environment through research, development and the transfer of innovative scientific and technological solutions, applications and services. The Council received a binding ruling from Revenue Canada that accepts this as a "Gift to the Crown". The Council will maintain a separate account of the capital contributions and all investment income earned. The amount contributed cumulatively to March 31, 2000, is as follows:

	2000	Change	1999
Capital contributions	$503,778	$352,415	$151,363
Investment earnings	88,508	31,305	57,203
Technology grants	(55,000)	(15,000)	(40,000)
Total	$537,286	$368,720	$168,566

6. Capital Assets

	2000			1999
	Cost	Accumulated Amortization	Net Book Value	Net Book Value
Buildings	$ 739,323	$ 706,920	$ 32,403	$ 38,742
Leaseholds	1,629,229	1,179,474	449,755	1,054,006
Equipment	15,147,674	11,899,769	3,247,905	2,564,120
Automotive	183,405	183,405	–	–
Goodwill	35,413	21,248	14,165	21,248
Fermentation Facility	3,290,312	624,126	2,666,186	2,617,673
GenServe Equipment	562,310	56,231	506,079	–
Land	11,000	–	11,000	11,000
	$21,598,666	$14,671,173	$6,927,493	$6,306,789

Included in the cost and net book value of equipment, is $748,568 (1999 - $128,819) of assets that were not amortized because they were not ready for use.

7. Bank Indebtedness

The Council was authorized by the Minister of Finance to establish a line of credit not to exceed $5,100,000. There is an assignment of the accounts receivable as collateral for bank indebtedness. Interest is charged on the line of credit at the Bank of Montreal prime rate.

8. Deferred Revenue – GenServe Equipment and Fermentation Facility

The Council receives contributions for certain capital assets, which it records as deferred revenue until such time as the assets are put in use and amortized. During the year, the Council received $726,020 (GenServe $562,310 and Fermentation $163,710) in contributions (1999 - $0 and $1,140,200) from the Agri-Food Innovation Fund (AFIF), a related party, which were recorded in deferred revenue and related to capital asset expenditures. Also during the year the Council recorded $389,504 (GenServe $56,231 and Fermentation $333,273; 1999 - $0 and $290,853) as revenue based on the amortization of the related capital assets.

The current portion of deferred revenue, is comprised of the following amounts:

	2000	1999
Following year's amortization of Fermentation Facility asset	$333,273	$290,853
Provincial Strategic Initiative Fund grant for startup costs	–	300,000
Agri-Food Innovation Fund revenue representing expenditures for the following fiscal year	699	231,674
Following year's amortization of GenServe assets	56,231	–
	$390,203	$822,527

The long-term portion, $2,795,429 (GenServe $449,848 and Fermentation $2,345,581; 1999 - $0 and $2,326,820), represents AFIF monies used to purchase capital assets that will be recognized as revenue at the same rate that the assets are amortized.

9. Accrual for Decommissioning

Atomic Energy Control Board of Canada licensing conditions require that SLOWPOKE reactor owners have in place a decommissioning plan and a financial plan to cover the associated costs.

The Council estimates decommissioning costs will be in the range of $800,000 to $1,400,000.

In the Council's best estimate, the costs of decommissioning will be much closer to the low end of the range. Additionally, the Council is expecting the useful life to exceed original estimates. As a result, as at March 31, 2000, $800,000 (1999 - $686,000) was accrued for decommissioning costs.

10. TecMark Inc.

TecMark International Commercialization Inc. ("TecMark") was incorporated under *The Business Corporations Act* (Saskatchewan) on October 9, 1996, as a wholly owned subsidiary of the Council. The purpose of the Corporation is to assist in the commercialization of technology for inventors, entrepreneurs and partner institutions in the Province of Saskatchewan.

Supplies and Services includes $55,095 (1999 - $86,217) in connection with projects undertaken by TecMark. All these projects are funded by SRC.

11. Joint Venture

Effective February 1, 1997, the Council entered into a 50 percent ownership joint venture with Bova-Can Parentage Testing Inc. The five-year arrangement automatically renews after the initial term in yearly increments, and provides Bova-Can Laboratories with access to all animal lists and history, and the genotyping market. Upon termination of this agreement, the complete database of genotypes, the DNA bank and 50% of the net assets will transfer to Bova-Can Parentage Testing Inc.

The effect of the transaction results in the Council retaining the following assets, liabilities, revenues, expenses and cash flows (which are included in the preceding consolidated financial statements) related to the Council's portion of the joint venture:

	2000	1999
Current Assets	$101,756	$46,976
Long-term Assets	112,232	160,100
Current Liabilities	29,620	29,796
Long-term Liabilities	8,251	8,280
Revenue	577,932	602,645
Expenses	570,814	583,264
Net income	7,118	19,381
Cash flows resulting from operating activities	59,717	75,098
Cash flows resulting from investing activities	(4,359)	(77,165)

12. Related Party Transactions

Included in these financial statements are transactions with various Saskatchewan Crown corporations, departments, agencies, boards and commissions related to the Council by virtue of common control by the Government of Saskatchewan and non-Crown corporations and enterprises subject to joint control and significant influence by the Government of Saskatchewan (collectively referred to as "related parties").

Routine operating transactions with related parties are settled at prevailing market prices under normal trade terms except for the following:

During the year, the Council paid $2.9 million (1999 - $2.7 million) to the Saskatchewan Property Management Corporation (SPMC) and Saskatchewan Opportunities Corporation (SOCO) for accommodation charges on buildings. At year-end, SRC has lease commitments with SOCO requiring minimum lease payments of $1.8 million for each of the next two years.

12. Related Party Transactions *(continued)*

During the year, the Council entered into fee-for-service contracts for $1.5 million (1999 - $1.8 million) with related parties, of which $0.7 million remains in accounts receivable as at March 31, 2000. The Council has $3.2 million (1999 - $3.2 million) of deferred revenue from related parties as at March 31, 2000. Of the $3.2 million, $2.7 million (1999 - $3.2 million) is related to the Fermentation Facility's funding from AFIF and $0.5 million (1999 - $0) is related to the GenServe funding from AFIF.

During the year, the Council provided general administrative services to the Saskatchewan Research Council Employees' Pension Plan without charge.

Other transactions with related parties and amounts due to/from them are described separately in the financial statements and the notes thereto.

13. Comparison of Planned and Actual Results

A comparison of actual to budgeted results for each line item on the income statement follows:

	Actual 2000	Budget 2000	Actual 1999	Budget 1999
Revenue:				
Contracts	$10,679,447	$12,671,000	$11,167,240	$12,945,000
Grant – General Revenue Fund	7,947,000	7,947,000	7,956,000	7,956,000
Grants – AFIF	389,504	395,000	290,853	–
Bank interest revenue	150,459	50,000	136,137	26,000
	19,166,410	21,063,000	19,550,230	20,927,000
Expenses:				
Salaries and benefits	10,047,840	10,000,000	10,062,730	9,675,000
Supplies and services	4,214,409	6,241,000	4,542,434	6,907,000
Accommodation charges	3,078,929	3,250,000	3,027,236	3,440,000
Amortization of capital assets	907,145	1,122,000	1,007,830	905,000
Amortization of AFIF funded assets	389,504	395,000	290,853	–
Bank interest	11,077	54,000	8,853	90,000
	18,648,904	21,062,000	18,939,936	21,017,000
Net income from operations	517,506	1,000	610,294	(90,000)
Technology in Action Fund Donations	352,415	–	25,000	–
Pension Plan increase (decrease) in surplus	175,576	–	(125,315)	400,000
Pension Plan enhancement to Pensioners' Benefits	(53,000)	–	(470,000)	–
Net income	$ 992,497	$ 1,000	$ 39,979	$ 310,000

14. Expenses by Program

Program	Actual 2000	Budget 2000	Actual 1999	Budget 1999
Research & Technology	$13,554,236	$15,043,903	$13,084,120	$15,500,262
Laboratory Services	5,094,668	6,018,097	5,855,816	5,516,738
Total	$18,648,904	$21,062,000	$18,939,936	$21,017,000

Administrative services have been allocated to each program based on a percentage of labour. Space costs have been allocated to each program based on an estimate of square footage occupied.

15. Financial Instruments

The Council's significant financial instruments consist of accounts receivable, accounts payable and the bank indebtedness (line of credit).

Credit Risk:

The Council is exposed to credit risk from the potential default of customers. However, the majority of the Council's receivables are from related parties, other government agencies and reputable, longstanding corporate clients. Therefore the credit risk is minimal.

Fair Values:

The fair values of the accounts receivable, accounts payable and bank indebtedness approximate their carrying value due to the short-term nature of these instruments.

16. Uncertainty due to the Year 2000 (Y2K)

The Year 2000 Issue arises because many computerized systems use two digits rather than four to identify a year. Date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems may arise in some systems that use certain dates in 1999 to represent something other than a date.

Although the change in date has occurred, it is not possible to conclude that all aspects of the Year 2000 Issue that may affect the entity, including those related to customers, suppliers, or other third parties, have been fully resolved.

17. Financial Statement Presentation

Certain of the 1999 financial statement balances have been reclassified to conform to the 2000 presentation.

Saskatchewan Research Council

1999-00 Annual Report

Supplementary Information
(unaudited)

Details of Revenue and Expense

Saskatchewan Research Council (Vote 35)
(Subvote SR01)

Mission Statement
The Saskatchewan Research Council's (SRC) mission is to help the people of Saskatchewan strengthen the economy with quality jobs and a secure environment. We do it through research, development, and the transfer of innovative scientific and technological solutions, applications and services.

SRC creates wealth through the responsible application of science and technology to assist Saskatchewan industry to be globally competitive.

Transfers
All expenses paid from this vote were transfers to the Saskatchewan Research Council.

Saskatchewan Research Council	
Note: In addition, $65,000 was received and has been deferred until the next year	
(Subvote SR01)	$ 7,947,000

This program provides funding for the Saskatchewan Research Council:

Revenue:		
Contracts	10,679,447	
Grants - General Revenue Fund	7,947,000	
Grants - Agri-Food Innovation Fund	389,504	
Bank interest revenue	150,459	$ 19,166,410
Expense:		
Personal services	8,901,202	
Travel	657,350	
Transfers	0	
Supplier payments	4,714,774	
Purchase of capital assets	2,564,051	
Difference between purchases and amortization of capital assets	(1,267,402)	
Accommodation charges - SPMC/SOCO	3,078,929	$ 18,648,904
Net Income from operations		517,506
Technology in Action Fund donations		352,415
Pension Plan (decrease) increase in surplus amount		175,576
Pension Plan enhancement to Pensioners' benefits		(53,000)
Net income		$ 992,497

Details of expenses

Personal Services

Unaudited list of individuals who received payments for salaries, wages, honorariums, and severances, etc. which total $2,500 or more. All of the severance costs paid to individuals are included below.

Allen, Dianne	$	41,786	Fahri, Muzaffer	$	49,646
Anderson, Deanna		25,437	Falk, Sarah		49,362
Anderson, Fawn		8,371	Fedyk, Randy		26,587
Annesley, Irvine		60,169	Folk, Betty		18,694
Archibald, Patricia Ann		31,001	Freitag, Norman P		70,600
Ashton, Robert		32,035	Fusick, Jeanette		24,525
Babich, Kenneth Dale		36,860	Gagnon, Derek		17,743
Baldoza, Nelia		11,619	Gartner, Bernard J		46,975
Beaulieu, Carol		36,620	Gerwing, Victoria J		40,534
Begrand, Raymond M		42,861	Gibbs, Tyler		7,112
Bekkaoui, Faouzi		52,479	Giesinger, Joseph D		34,758
Bell, Brian		29,935	Gillies, Randall G		79,052
Bengtson, Monica		10,356	Gimby, Mark		46,735
Beres, Beau		13,720	Gipman, Keith		23,514
Bernath, Cary		22,238	Godwin, Robert C		44,954
Biclea, Lucian		13,005	Gorgchuck, Lynne E		40,106
Bouvier, Rodney		8,662	Greaves, Laura		26,079
Brown, Gerrald L		32,292	Green, Marcia		30,219
Brown, Wanda		39,758	Grier, David		85,660
Buhl, Regan		20,024	Halter, Joanne		6,072
Campbell, Janet		56,825	Hannah, Brent		27,641
Chan, Katherine		25,728	Haskey, Jennifer		28,150
Chiasson, Jean		17,393	Hawkins, Robert		2,558
Chorney, David		50,386	Hebig, Lionel		33,462
Chrusch, Loran E		52,397	Heskin, Marlene		32,184
Chung, Eddie S		69,936	Hill, Kelly		56,722
Colbert, Lisa		5,451	Hill, Sheldon G		58,087
Collins Janinne		27,238	Hollmann, Ursel		40,629
Crawford, Vanessa		24,826	Holst, Douglas		19,571
Crone, Leanne		12,959	Holsten, Allan D		66,171
Cutts, Steven		31,313	Horn, Edna F		32,315
Debray, John		3,278	Hosseinian, Farah		15,301
Dennison, Kim		3,407	Huang, Shen-Shong		80,397
Derry, Lorna		24,023	Hudym, Charlene		29,987
Diakow, Paulette		23,923	Huntley, Frances		18,247
Dick, Robin D		54,339	Hutchence, Keith		64,173
Dickinson, Julia		29,761	Hutchinson, James D		122,550
Didur, Tracy		25,723	Jackson, Allan T		43,224
Doell, Vanessa		25,072	Jackson, Cindy		41,853
Dong, Guoqiang		54,091	Jahren, Rolf		48,408
Dong, Ming		54,548	Jamieson, Jeremy		3,605
Drader, Gloria		55,680	Jaworski, Edward J		46,698
Dumont, Robert		74,456	Jensen, Jason		15,080
Dyck, John H		76,273	Jones, Joseph T		48,413
Edmison, Tracy		13,591	Kalyniuk, Crystal		14,485
Elder, Derry		9,197	Kaminski, Tony		72,472
Evans, Verda M		40,581	Kennedy, Renata		23,155
Exelby, Donald Ray		47,694	Khosla, Indra		27,101

Personal Services - Continued

Knops, Curtis	$	27,801	Pappas, Ernie S	$	77,496
Kocdag, Gurcan		71,000	Paterson, Janice		5,203
Kordan, Danya		22,587	Perron, Gerard R		47,023
Kosteniuk, Steve		24,379	Peters, Cathy		27,765
Kostiuk, Tamra		27,263	Peters, Judy		3,986
Kraay, Gerrit J		77,808	Piche, Tina Mari		23,803
Kristoff, Brian J		78,156	Plante, Yves		64,647
Kunstmann, Linda		31,494	Poelzer, Lisa		7,287
Kurucz, Larry R		48,678	Polanski, Danna		24,896
Lang, Kevin		40,618	Polishchuk, Laurie		35,382
Lawrence, Wendy		54,535	Powell, Vicki		29,577
Lennox, Ernest		36,050	Pridham, Pattilynn		40,208
Liebe, Harold		54,355	Prosofsky, Bobbi Jo		10,101
Lui, Helen		7,875	Quirt, David		54,240
Lychak, Joseph V		46,819	Radchenko, Ian		35,700
Ma, Jennie		31,712	Ranganathan, Ranga		85,332
Maathuis, Harm		76,248	Raven, Julie		26,787
Macleod, Colleen		36,071	Remenda, Marian		19,311
MacTavish, Peggy		62,471	Rennie, Shannon		7,594
Madore, Catherine		44,745	Renouf, Gay		29,591
Maki-Scott, Penny		22,577	Richard, Mike		17,787
Makohon, Jerry T		55,866	Rielkoff, Wallace M		37,710
Malinoski, Allan		73,571	Riley, Darren		31,693
Malko, Pam		16,930	Robinson, John		57,124
Mamer, Jackie		25,708	Rowe, Tangy		25,374
Mann, Bruce		35,650	Salmond, Maureen		7,274
Mann, Kimberley		27,993	Savostianik, Marie		47,486
Mazurkevich, Terrance		24,388	Schaan, Jason		42,381
McCaffery, Kari		5,094	Schergevitch, Paul		43,959
McClelland, Cheryl		18,402	Schneider, Lawanda		27,007
McKay, Candy		5,418	Schnell, Bart		40,158
McKibben, Melissa		37,526	Schreiner, Bryan T		77,496
McLean, Greg		36,709	Scott, James		7,427
McLeod, Keith		5,744	Scoular, Jerry		67,303
Meier, Trent		4,061	Semple, Craig		11,816
Melville, Guy E		63,226	Seymour, Bernard W		41,333
Meyer, Gordon		35,981	Sher, John		58,367
Meyers, Sandra		14,693	Sherwood, Pat		38,464
Millhouse, Maureen G		41,944	Shewchuk, Stanley R		79,288
Mohamed, Mohamud Ahmed		19,903	Shi, Rupan		40,760
Moddy, Mary		44,235	Shutiak, Gail		3,227
Moser, Pat M		42,873	Simpson, Mark A		56,114
Munkler, Jacki		9,509	Sinclair, Gladys		21,756
Murray, Craig		66,447	Small, Michael H		57,379
Neufeld, Leona		5,261	Smith, Brett		43,563
Ng, Judy		25,286	Smithson, Gene L		92,138
Nicolichuk, Nicholas		49,545	Smudy, Crystal		60,468
Nilsson, Darlene		12,214	Snodgrass, Lawrence J		48,785
Niyazi, Shenay		29,950	Snook, Vicky		35,681
Noseworthy, Steven		47,465	Sopher, Lori E		23,041
Olm, Orville J		55,153	Sosulski, Krystyna		76,872
Owens, Kenneth A		76,872	Soveran, Douglas		77,563

Personal Services - Continued

Stanek, Brenda A	$ 63,382
Sulatisky, Michael	81,457
Sun, Ruijun	44,312
Tacik, Brenda	33,211
Tamosiunis, Cindy	12,275
Tang, Janelle E	6,645
Tanner, Kasandra	9,806
Tarasoff, Leah D	34,386
Thorpe, Jeffrey Pete	65,117
Tofani, Rick	45,273
Toner, Juli	9,034
Turple, Leonard R	62,048
Ullah, Beverly	32,119
Van Eyck, Lisa	9,584
Verkoczy, Bela	69,976
Villena, Teodoro	11,335
Wallace, Keith	65,420
Wallace, Lisa	79,849
Wang, Yoa Qin	27,732
Warkentin, Terri L	33,827
Webb, Kathie	26,478
Wheaton, Elaine	65,212
Wheeler, Brian	31,117
Wiley, Trevor	9,436
Wilkie, Shane	23,524
Wilms, Janice	11,387
Wittrock, Virginia	43,762
Wolfe, Tracey	24,259
Wong, Roger	72,730
Wonnick, Michael	42,085
Wright, Donna	30,969
Wu, Kim	26,981
Xu, Lisa	3,575
Young, Kim	63,808
Yuen, Wo Kai	72,498
Zerr, Nadine	23,421
Zimmer, Jefferey	46,274
Zlipko, Dennis A	43,149
Zuk, Bernard	67,136
Salaries Payable	142,073
Adjustment for Joint Venture 50% elimination	(211,285)
Under $2,500	15,363
	$ 8,901,202

Travel

Minister's Travel	$ -
Other (unaudited)	657,350
	$ 657,350

Transfers

Unaudited list of transfers to external parties, excluding administrative expenditures which are included under personal services, travel and supplier payments.

Nil	$ -
	$ -

Accommodation

Unaudited list of payees who received $20,000 or more for the provision of accommodation.

Sask Opportunities Corporation	$ 2,012,472
Sask Property Management	927,244
Northstar Innovative	50,431
Under $20,000	88,783
	$ 3,078,929

Supplier Payments

Unaudited list of payees who received $20,000 or more for the provision of goods and services, including office supplies and contracts.

Advanced Datasystems Ltd	$	296,169
Alsco Uniform & Linen Service		20,922
Anachemia Science		42,181
Apex Graphics		21,216
Apex Instruments		27,335
Azon Canada, Inc		23,560
Bob Wehage Hauling & Bobcat Service		28,346
Boffins Café		24,661
Braid Flooring Ltd		25,317
C.A. Shook Consulting Ltd		24,000
Canada Trust		141,847
Canadian Liquid Air Limited		90,629
Cardwell Human Resources		24,000
City of Saskatoon		31,470
CMG (Computer Modelling Group)		36,000
CSIRO		150,000
Deloitte & Touche		24,100
Ebsco Canada Ltd		23,404
Express It		22,206
Fisher Scientific Co Ltd		68,449
Friggstad Architects		95,769
Gordon Techologies		20,110
Hayter Drilling Ltd		26,104
Innovators in the Schools		25,000
Inter-City Mechanical Ltd		77,240
Kirby Eades Gale Baker		25,029
KPMG Acruarial, Benefits & Compensation		35,639
Mandel Scientific		21,806
Marsh Canada Inc		51,950
Minister of Finance		101,947
PE Biosystems		33,279
Precarn Associates Inc		25,300
Quality Tools & Welding Supplies		29,835
Radarsat International		26,977
Receiver General for Canada		20,239
Roche Diagnostic Systems		23,334
Sask Opportunities Corporation		409,408
Sask Property Management		103,160
Saskatchewan Blue Cross		313,375
Saskatchewan Workers Compensation		76,677
SaskEnergy		26,107
SaskTel CMR		234,998
Sigma Aldrich Canada		45,651
Sectrum Computer Services		20,110
Supreme Office Products		29,595
University of Regina		35,468
University of Saskatchewan		153,708
VWR / Canlab		78,256
Under $20,000		1,402,893
	$	4,714,774

Purchase of Capital Assets Payments

Unaudited list of payees who received $20,000 or more for the purchase of capital assets.

Accent Stainless Steel	$	26,733
Advanced Datasystems Ltd		52,489
B. Braun Biotech		62,688
Beckman Coulter Canada		117,172
Canberra Packard Canada		31,975
Dycor Technologies		24,474
Endress&Hauser		49,234
Fasttrack Management		709,870
Fisher Scientific Co. Ltd.		21,067
Folio Instruments		43,460
Horizon Computer Solutions Inc.		50,700
Hoskin Scientific Ltd		27,903
LECO Instruments Limited		42,506
Li-Cor Inc.		197,235
LPKF Laser & Electronics		21,346
MJ Research Inc.		41,972
Molecular Devices Corporation		52,843
Peacock Inc.		24,385
Polymer Laboratories		20,925
Thermo Instruments (Canada) Inc.		140,919
Top-Logix Software & Computers		24,114
Tri-Canada Industries Ltd		32,586
Varian Canada Inc.		36,603
VWR/Canlab		91,141
Western Business Machines		128,090
Under $20,000		491,617
	$	2,564,051